Cumulative Effects Issues
Baseline Information for Forests
Past, Present and Future

INTRODUCTION

The purpose of this baseline information on forests is to analyze the cumulative effects of the Tier 1 Environmental Impact Statement for the proposed I-69 in southwestern Indiana. The information represents efforts to identify forest issues and to evaluate past, present, and future trends in southwestern Indiana and the state. Terms used in the text of this report are defined at the end of this appendix.

GEOGRAPHIC AND TIME PERIOD CONTEXT:

Forests are one of four major resources that are being analyzed for cumulative impacts as a result of I-69. These four resources include farmland, forests, wetlands, and threatened and endangered species. These four resources were selected based upon their importance in southwestern Indiana as well as input from various resource agencies.

For forests the geographic scope of the cumulative effects analysis is the 26-county study area. This study area was identified early in the project. The past, present, and future analysis of forests will look not only at the 26-county study area but the entire state of Indiana as well.

The time period that will be studied for this cumulative effects analysis includes past years to present day. The earliest available information are estimates from 1800 and 1860. Data on forests was reported by the United States Department of Agriculture starting in 1950 (Hutchison, O. Keith, 1956).

The analysis will also look into the future to identify future trends. This future analysis will be from the present day to the year 2025. The year 2025 is also the future analysis year for the economic modeling and the transportation demand modeling.

INDIANA FORESTS - PAST AND PRESENT:

Almost 200 years ago, forests covered about 85% of Indiana's land area (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). As farming became a central part of Indiana's economy, forests began to be replaced by farmland. By 1860, estimates indicate that approximately half of Indiana's forests had been burned, cleared, farmed, or abandoned (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). According to past records, Indiana was the leading producer of forest products for the United States in 1900. By that time forests comprised approximately 1.5 million acres of the original amount of forests in Indiana (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000).

In the last 50 years the trend towards declining forests is changing. In 1950, Indiana forests totaled 4,140,000 acres (see Table 1 and Figure 1). While the state total decreased from 1950 to 1967, recent figures for 1986 and 1998 show increases in forests (Hutchison, O. Keith, 1956) (Spencer, John S., Jr. 1969) (Smith, W.B. and M. F. Golitz, 1988) (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). By 1998 forests accounted for 4,501,300 acres in Indiana. Since 1967, forests have increased approximately 537,000 acres or about 17,300 acres per year.

Better land use practices have been developed in the last fifty years to address issues such as soil erosion, wetland protection, buffer strips along streams, and preservation of "green space" for wildlife habitat. Changing land management practices are contributing to this trend of increased forests as some cropland and pasture are allowed to revert to forest and existing narrow wooded strips are allowed to expand. The increase in forests due to these changing practices has been greater than losses from the conversion of forests to agriculture, urban/suburban expansion and other uses in recent decades.

While forests have increased over the past 50 years, the volume of trees or growing stock on timberland acres has substantially increased. The Forest Service of the United States Department of Agriculture prepares Forest Inventory and Analysis statistics (Hutchison, O. Keith, 1956) (Spencer, John S., Jr. 1969) (Smith, W.B. and M. F. Golitz, 1988) (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). In addition to tracking forest acreages and timberland acreages, these statistics are concerned with growing stock volume. Growing stock volume focuses on the size and number of trees in land used for timberland. Timberland is forests that are capable of producing more than 20 cubic feet per acre of wood crops. Growing stock volume represents wood production capability.

Over the past 50 years growing stock has increased from 2,787,700,000 cubic feet to 6,900,300,000 cubic feet (see Table 1 and Figure 2). (Hutchison, O. Keith, 1956) (Spencer, John S., Jr. 1969) (Smith, W.B. and M. F. Golitz, 1988) (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). The average timberland volume per acre has increased from 683 cubic feet per acre to 1,589 cubic feet per acre. This is an increase of 133% over 50 years. For comparison, Michigan averaged 1,431 cubic feet per acre in 1993 (Schmidt, T.L., J.S. Spencer, Jr. and R. Bertsch, 1997)

This analysis shows that the forest products industry in Indiana is a major manufacturing industry. While forests have steadily increased over the past 50 years, the amount of growing stock available in Indiana has substantially increased. This would allow for increased harvesting without threatening our forests as a resource.

SOUTHWESTERN INDIANA FORESTS-PAST AND PRESENT:

The study area identified for this project includes 26 counties in southwestern Indiana. Having identified the trends for forests across the state of Indiana, the analysis of the trends in southwestern Indiana is the next step in developing this baseline information for the cumulative

effects.

Table 2 and Figure 3 show the acreages for forests from 1950 to 1998 in the 26 counties in southwestern Indiana (Hutchison, O. Keith, 1956) (Spencer, John S., Jr. 1969) (Smith, W.B. and M. F. Golitz, 1988) (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). Until 1986, forests had been increasing in southwestern Indiana by approximately 4,000 acres per year. The period from 1986 to 1998 showed a slight decline in total acreage. These statistics on Indiana's forest resources have been periodically published by the USDA Forest Service. Publications from 1956 to 2000 were obtained to determine forest trends for this appendix (Hutchison, O. Keith, 1956) (Spencer, John S., Jr. 1969) (Smith, W.B. and M. F. Golitz, 1988) (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000).

FORESTS -FUTURE TRENDS:

The trend in past years has been increases in forests both at the statewide level, as well as, in southwestern Indiana. In addition, the average timberland cubic feet per acre has substantially increased allowing for increased production without threatening forests as a resource. The question to be answered for future trends is whether these increases will continue into the future or will the amount of future forests remain at present day levels.

Trend line analysis for forest acreages for southwestern Indiana and for the entire state is less accurate as a forecast tool as a result of the recent fluctuations in acreages. Looking at the data for both Indiana and southwestern Indiana, the data appears to indicate that the amount of forests is reaching a plateau. Information from the Forest Service indicates that we have achieved a balance between forest interests and users (Schmidt, T. L., M. H. Hansen, and J.A. Solomakos, 2000). With such a balance there maybe little change in the amount of forests in the next few years.

For average timberland volume, the past trends appear to indicate that the average timberland cubic feet per acre may continue to increase.

Resources and Publications:

Hutchison, O. Keith. 1956. "Indiana's Forest Resources and Industries." Forest Resource Report No. 10. Central States Forest Experiment Station, USDA Forest Service. U.S. Government Printing Office, Washington, D.C. 44 pp.

Spencer, John S., Jr. 1969. "Indiana's Timber." Resource Bulletin NC-7. North Central Forest Experiment Station, USDA Forest Service, St. Paul, Minnesota. 61 pp.

Smith, W. B., and M. F. Golitz. 1988. "Indiana Forest Statistics, 1986." Resource Bulletin NC-108. North Central Forest Experiment Station, USDA Forest Service, St. Paul, Minnesota. 139 pp.

Schmidt, T. L., M. H. Hansen, and J. A. Solomakos. 2000. "Indiana's Forests in 1998." Resource

Bulletin NC-196.North Central Research Station, USDA Forest Service, St. Paul, Minnesota.139 p.

Schmidt, T.L., Spencer, J.S. Jr, Bertsch, R. 1997. Michigan's Forests 1993: An Analysis. Resour. Bull. NC-179. St. Paul, MN. 96 p.

Definition of Terms:

Timberland. Forests that are producing, or are capable of producing, more than 20 cubic feet per acre per year of industrial wood crops under natural conditions, that are not withdrawn from timber use, and that are not associated with urban or rural development. Currently inaccessible and inoperable areas are included.

Forests. Land that is at least 1 acre in area, 120 feet wide, and 10 percent covered by trees of any size.

Growing Stock Volume. Net volume in cubic feet of growing stock trees.

Average Timberland Volume per Acre. Growing stock volume divided by the total timberland acres.